

## Bald Eagle (*Haliaeetus leucocephalus*) Nesting in Iowa 2012

### Introduction

Iowa has experienced a dramatic increase in the number of nesting bald eagles over the past 20 years. Nationally, the Bald Eagle has recovered enough from the dangerously low numbers of the 1960's and 1970's that the U.S. Fish and Wildlife Service removed it from the Threatened and Endangered species list (T&E list) in 2007. Iowa followed suit by upgrading the eagle from a status of Threatened to a status of Special Concern on the state T&E list. Despite the bald eagle population's apparent good health, challenges to their conservation still exist. Strategic monitoring of eagle activity in the state, particularly nesting, remains a priority.

Since eagles returned to nest in Iowa in the late 1970's, the DNR has engaged in opportunistic data collection on eagle nesting territories. As of 2010, the Iowa Department of Natural Resources (DNR) collects data on bald eagle nesting territories in two different ways, one opportunistic and one systematic. Both of these data collection methods rely on citizen volunteers. The "opportunistic" includes casual monitoring of some eagle nests by DNR personnel as well as reports of nest locations and activity from Iowa citizens. These data are not systematically collected so the data available for each territory varies. Additionally, territories reported on may not be representative (i.e. people may be more likely to report on an active nest than an inactive nest).

In 2010, the DNR began a second and more formal program for monitoring eagle nests. This program involves randomly selecting a targeted number of nesting territories and establishing them as "sentinel" sites. Each of these sentinel sites is assigned a volunteer as its official monitor. The monitor makes 3 visits to the nest site and systematically collects data on the activity and productivity of the territory. In 2011, the number of sentinel territories was increased from 54 to 136, representing 50% of the known active eagle territories in the state.

### A Note on Terminology

A discussion of eagle nesting presents some complexities because of the bird's nesting ecology. While eagles exhibit strong nest site fidelity and return year after year to the same spot, there are some very common variants of this behavior that can complicate what we mean by an "active eagle nest".

In this document, the primary references will be to bald eagle territories. Eagles can build and use more than one nest per territory across time and space. The definition used by the DNR for a Bald Eagle territory is as follows; *"A habitat area up to 1 mile in radius (though sometimes smaller in good habitat) that is defended by a pair of eagles and used for breeding. Meets all breeding habitat needs including appropriate trees (or very occasionally other structures) to build nests and a nearby food source. A territory may hold more than 1 nest but may not house more than 1 pair of eagles within the same breeding season. The pair of eagles need not be the same pair across years."* When a new nest is reported, every effort is made to determine whether it belongs to an existing or represents a new territory.

Another term that appears straightforward at first, but can be problematic, is the term "active". There are two definitions of "active" used in our dataset. One denotes whether a nesting territory is active or inactive. This is an overall designation and may not be directly related to what occurred in the territory during the current nesting season. The definition for this is as follows; *"Any Bald Eagle*

*territory that has had some eagle activity within the previous two years of the current nesting season. Activity does not imply breeding success.”* Eagle territories are commonly inactive one season but active again the next, which is why a territory must be unused for at least three seasons before being designated inactive. The second use of “activity” in the dataset relates to the yearly status of the nests within a territory.

### Bald Eagle Nesting Statistics

#### *All Survey Data (including opportunistically collected data)*

Since 1977, approximately 614 bald eagle territories have been reported to the Iowa DNR. There are reports of nests from 92 of Iowa’s 99 counties, with Audubon county having its first confirmed report in 2012 (Fig. 1). Allamakee County, with 119, has the highest number of nests reported followed by Clayton County with 62 (Fig. 1). Following the 2012 nesting season, 336 territories have an overall designation of active (Fig. 2), 131 are designated inactive, and 127 have an unknown status (this usually means they have not been reported on >3 years but the nest was active at last report).

In 2012, reports were received for 307 territories with 48 being reported for the first time. Roughly 72% (222) of the territories were reported active in 2012, and 21% (65) were reported inactive. The remaining 20 territories were reported with unknown activity (Table 1).

Forty-seven percent (104) of the territories reported as active in 2012 included data on the outcome of the nesting season. Fifteen (14%) of the 104 nests ended up failing, and 89 (86%) were successful in producing young. For the 98 territories for which we have a good count of fledglings, a total of 151 young were produced, which averages to 1.54 young produced per nest. If we extrapolate, assuming 86% of all nests reported as active would be successful; this would produce an estimate of 294 young fledged from Iowa nests in 2012.

It should be noted that looking at the entire dataset has problems because it is highly influenced by reporter behavior; i.e. the number of people reporting their observations varies as does the nests that are reported on. The opportunistically reported data is important because it is the primary source of new nest reports and does provide a valuable yearly snapshot. However, the full dataset, including the opportunistic reports, may not be representative of the nesting population as a whole and is misleading when examining trends across years. The sentinel territory monitoring put into place in 2010 compensates for some of these full dataset weaknesses.

#### *Sentinel Territory Monitoring Data*

The sample size of sentinel territories is 136. We were able to secure monitors for 95 of these territories (Fig. 3, Table 2) and data was received on 77 (81%) which represents 23% of the known active territories (objective is to get data on 25%). Within the 77 territories, 61 were active (79%), 13 were inactive (17%), and 3 could not be found or had unknown activity (Table 2). The outcome of the 61 active nests broke down as follows: 45 successful, 3 failed and 13 unknown.

Seventy-one young were produced by the active nests: 3 nests fledged no young, 8 nests fledged 1 young, 27 nests fledged 2 young and 3 nests fledged 3 young. The estimated number of young produced per nest was 1.48.

For 27 of the territories, monitors were able to collect data on the number of chicks and the number of fledglings. From these data it appears that eaglet survival to fledging was high; 96% of the chicks observed in these nests reached fledging.

#### Future Plans and Other Bald Eagle Projects

The DNR's Wildlife Diversity Program received a grant in 2012 to produce a training video for Bald Eagle Nest monitors. Ravenswood Media out of Chicago was hired to produce the video. Over the spring and summer months Dave McGowan of Ravenswood met with Stephanie Shepherd, Bruce Ehresman and several of our bald eagle nest monitors in the field to film the bulk of the video. Filming and production on this video have been completed and the video should be available on our website by the end of the year. The video is an additional training tool that will allow us to reach out to more people, especially those who are unable to attend a workshop. The video will be especially beneficial for people who live in areas where workshops are difficult to fill.

Monitoring of sentinel nests will continue in the 2013 nesting season. We will be adjusting the number of sentinel nests to reflect the higher number of active territories as well as to replace territories that have become inactive (no nesting activity for three years). We hope to recruit and train volunteers to monitor all sentinel territories, with the ultimate goal being to receive data on at least 25% of all active territories in the state. These data will be extremely important as we collect future years' data and will be crucial for establishing trends in nest success and productivity and for determining the rate of nest turnover. If at any time the average number of young produced per territory falls to less than 1 fledgling/nest for 3 consecutive years, action will be taken to determine the cause of this lack of production.

Training workshops are scheduled in late February and March in O'Brien, Muscatine and Marshall Counties. Details on the schedule and how to register can be found on the website: [www.iowadnr.gov/volunteerwildlifemonitoring/](http://www.iowadnr.gov/volunteerwildlifemonitoring/).

#### Conclusions

With only three years of data on our sentinel territories, it is too early to make conclusions. In addition, we need to continue to increase the number of monitored nests to our target of 25% of all active nests to be confident of the data's accuracy and precision. However, since the average number of young per nest has stayed above one and the percentage of successful nests in 2012 was higher than in the previous two, the overall picture is positive. A record number of nests were reported again this year and we had a very high volunteer participation rate. We can say with confidence that Iowa has at least 222 active territories and that the true number of active territories is likely higher.

#### Acknowledgements

A huge debt of gratitude goes out to our Bald Eagle Nests Monitors, who continue to provide many insights along with their data about Bald Eagles in Iowa. Thank you!



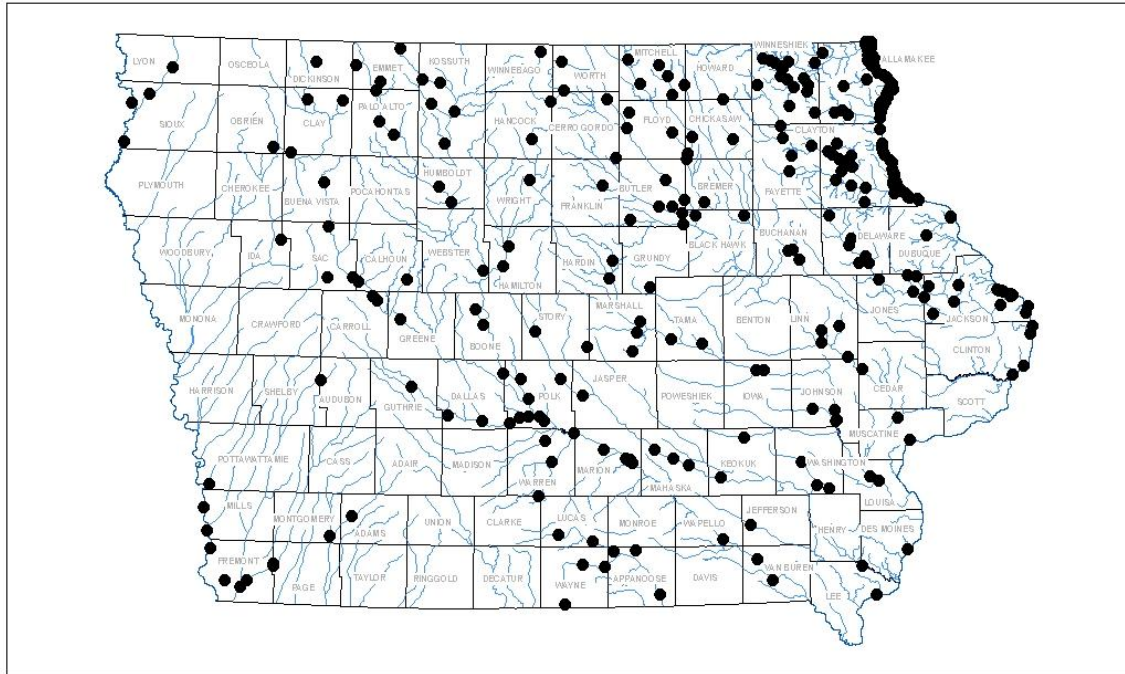


Figure 2. Iowa Bald Eagle Territories, 2012

**Legend**

- 2012 Active BETerr
- Major Rivers

Summary:  
Total Active Bald Eagle Territories: 336  
Reported as Active in 2012: 222

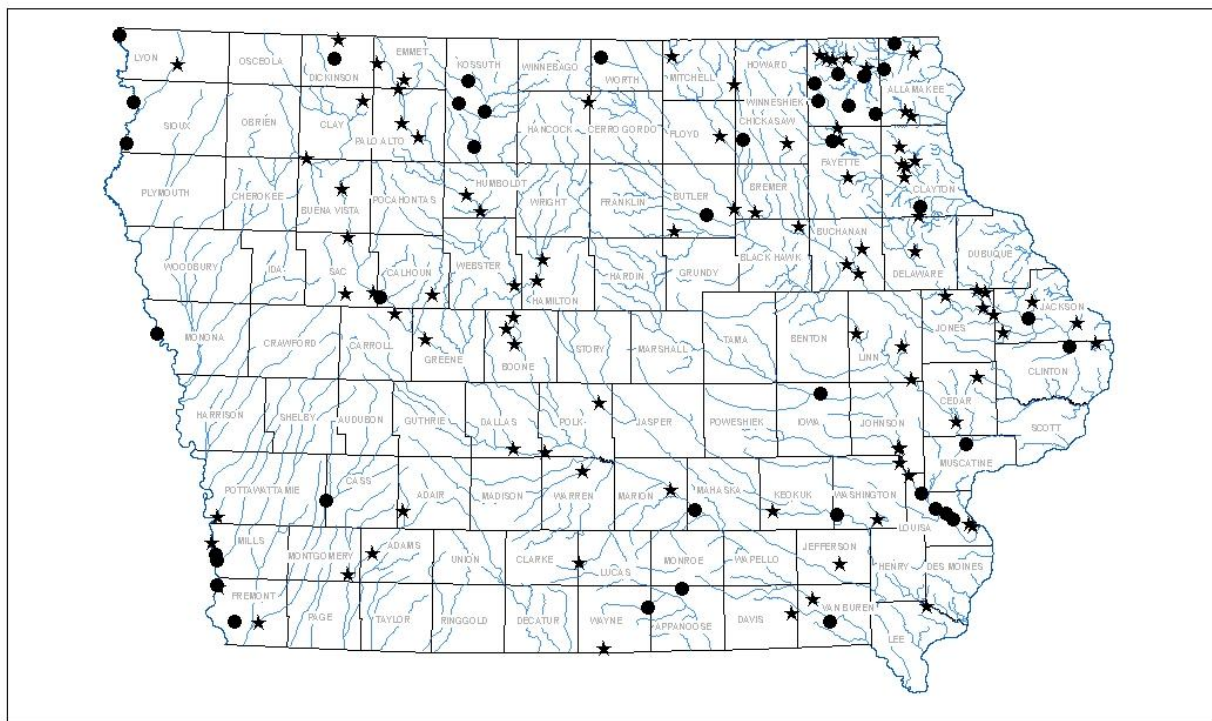


Figure 3. Iowa Sentinel Bald Eagle Territories, 2012

**Legend**

- 2012 Sentinel Territories Without Monitors
- ★ 2012 Sentinel Territories With Monitors
- Major Rivers



Table 1. Yearly Iowa Eagle Nest Opportunistic Report Summary							
Year	Total # of Territories Reported	# of New Territories Reported	# of Nests Reported Active	# of Nests Reported Inactive	# of Territories with production known	Total # of young produced	Average young produced per Territory
1998	94	78	76	13	62	73	1.18
1999	88	31	66	19	47	66	1.40
2000	76	22	56	10	36	48	1.33
2001	67	9	48	14	27	34	1.26
2002	92	17	70	12	29	47	1.62
2003	106	27	85	8	41	61	1.49
2004	114	22	85	19	29	39	1.34
2005	121	14	88	24	42	70	1.67
2006	139	12	112	23	43	60	1.40
2007	170	17	135	29	59	92	1.56
2008	198	85	136	57	48	70	1.46
2009	283	63	210	66	63	97	1.54
2010	265	47	205	40	94	138	1.47
2011	290	50	213	62	76	116	1.53
2012	307	48	222	65	98	151	1.54
<b>TOTAL</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>712</b>	<b>1162</b>	<b>NA</b>
<b>AVG</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>1.45</b>

Table 2. Summary of Monitoring Results for Sentinel Bald Eagle Nests			
	2010	2011	2012
Total Territories Chosen	54	136	136
Assigned Territories	48	81	95
# of Territories With Data Collected	42	69	77
Active Territories	33	52	61
<i>Successful</i>	18 (55%)	37(71%)	45(74%)
<i>Failed</i>	6 (18%)	6 (12%)	3 (5%)
<i>Outcome Unknown</i>	9 (27%)	11(21%)	13(21%)
<i>Number of Young</i>	35	50	71
<i>Avg. # of Young/Nest</i>	1.46	1.16	1.48
Inactive Territories	4	14	14
Unknown Territories	5	3	3